WE CLAIM:

1. A network path selection method comprising:

maintaining a network topology repository comprising a plurality of nodes and a plurality of links interconnecting the nodes, the network topology further comprising a weighted BE (best effort) connection metric for each of the plurality of links;

to determine a path from a source to a destination having a requested BE service volume:

a) creating a virtual topology in which all links have weighted BE metrics updated to include the effects of the requested BE service volume;

b) identifying a best path through the virtual topology taking into account the weighted BE metrics.

2. A method according to claim 1 wherein the weighted BE connection metric takes into account only BE connection service volumes.

3. A method according to claim 1 wherein the weighted BE connection metric for a given link takes into account BE connection service volumes on the given link, and a remaining capacity on the given link taking into account other traffic classes.

4. A method according to claim 1 further comprising:

setting aside a fraction of each link's capacity to be made available for BE traffic.

5. A method according to claim 1 further comprising:

computing the weighted BE connection metrics in a manner which encourages making use of at least a portion of unused bandwidth which is reserved for other traffic classes.

6. A method according to claim 1 wherein the weighted BE connection metric for each of the plurality of links is determined according to

$$M_k = \Sigma w_i$$

where M_k is the metric for a kth of the plurality of links, where Σw_i = a sum of previously requested BE connection service volumes, where w_i is a service volume for the ith previously requested BE connection.

7. A method according to claim 1 wherein the weighted BE connection metric for each of the plurality of links is determined according to:

$$M_k = \Sigma w_i / X$$

where M_k is the metric for a kth of the plurality of links, where Σw_i = a sum of previously requested BE connection service volumes, where w_i is a service volume bandwidth for the ith previously requested BE connection, and where X is a quantity which introduces effects of other traffic classes, with X being larger when the particular link has more capacity available for BE traffic, and X being smaller when the particular link has less capacity available for BE traffic.

8. A method according to claim 1 wherein the weighted BE connection metric for each of the plurality of links is determined according to:

$$M_k = \Sigma w_i / (\delta((1-\alpha)C - \Sigma(\text{Reserved bandwidth of non-}BE) + \alpha C)$$

where:

M_k is the metric for a kth of the plurality of links;

Σw_i = a sum of the previously requested BE connection service volumes, where w_i is a service volume for the ith BE connection;

C = total capacity of the link;

δ = a scaling constant ($0<=\delta<=1$) determining the fraction of remaining unreserved bandwidth of higher priority traffic classes which is to be made available for BE traffic;

α = fraction of total capacity C to be set aside for reservation by BE connections; and

Σ(Reserved bandwidth of non-BE) = the sum of all non-BE bandwidth reserved on the link.

9. A method according to claim 1 wherein the step of identifying a best path through the virtual topology taking into account the weighted BE metrics is performed using a multi-constraint routing algorithm which also takes into account at least one of:

administrative costs, edge disjointness, node disjointness, and shared risk link group disjointness for protection/restoration paths.

10. A method comprising:

computing a weighted BE connection metric for a link;

advertising the weighted BE connection metric within a network.

11. A method according to claim 10 where the weighted BE connection metric within a network is advertised as part of a modified OSPF-TE (Open Shortest Path First - Traffic Engineering) link state advertisement.

12. A network component adapted to perform path selection, the component comprising:

a network topology repository identifying a network topology comprising a plurality of nodes and a plurality of links interconnecting the nodes, the network topology further comprising a weighted BE (best effort) connection metric for each of the plurality of links;

a network path selecting component adapted to determine a path from a source to a destination having a requested BE service volume by:

a) creating a virtual topology in which all links in the network topology have weighted BE metrics updated to include the effects of the requested BE service volume;

b) identifying a best path through the virtual topology taking into account the weighted BE metrics.

13. A network component according to claim 12 wherein the weighted BE connection metric takes into account only BE connection service volumes.

14. A network component according to claim 12 wherein the weighted BE connection metric for a given link takes into account BE connection service volumes on the given link, and a remaining capacity on the given link taking into account other traffic classes.

15. A network component according to claim 12 wherein a fraction of each link's capacity is set aside to be made available for BE traffic.

16. A network component according to claim 12 wherein:

the network path selecting component is adapted to compute the weighted BE connection metrics in a manner which encourages making use of at least a portion of unused bandwidth which is reserved for other traffic classes.

17. A network component according to claim 12 wherein the weighted BE connection metric for each of the plurality of links is determined according to

$$M_k = \Sigma w_i$$

where M_k is the metric for a kth of the plurality of links, where Σw_i = a sum of previously requested BE connection service volumes, where w_i is a service volume for the ith previously requested BE connection.

18. A network component according to claim 12 wherein the weighted BE connection metric for each of the plurality of links is determined according to:

$$M_k = \Sigma w_i / X$$

where M_k is the metric for a kth of the plurality of links, where Σw_i = a sum of previously requested BE connection service volumes, where w_i is a service volume bandwidth for the ith previously requested BE connection, and where X is a quantity which introduces effects of other traffic classes, with X being larger when the particular link has more capacity available for BE traffic, and X being smaller when the particular link has less capacity available for BE traffic.

19. A network component according to claim 12 wherein the weighted BE connection metric for each of the plurality of links is determined according to:

$$M_k = \Sigma w_i / (\delta((1-\alpha)C - \Sigma(\text{Reserved bandwidth of non-}BE) + \alpha C)$$

where:

M_k is the metric for a kth of the plurality of links;

Σw_i = a sum of the previously requested BE connection service volumes, where w_i is a service volume for the ith BE connection;

C = total capacity of the link;

δ = a scaling constant (0<=δ<=1) determining the fraction of remaining unreserved bandwidth of higher priority traffic classes which is to be made available for BE traffic;

α = fraction of total capacity C to be set aside for reservation by BE connections; and

Σ(Reserved bandwidth of non-BE) = the sum of all non-BE bandwidth reserved on the link.

20. A network component according to claim 12 wherein identifying a best path through the virtual topology taking into account the weighted BE metrics is performed using a multi-constraint routing algorithm which also takes into account at least one of:

administrative costs, edge disjointness, node disjointness, and shared risk link group disjointness for protection/restoration paths.

21. A network component comprising:

means for computing a weighted BE connection metric for a link;

means for advertising the weighted BE connection metric within a network.

22. A network component according to claim 21 where the weighted BE connection metric within a network is advertised as part of a modified OSPF-TE (Open Shortest Path First - Traffic Engineering) link state advertisement.